

# ABSTRACT

In one embodiment a precursor gas for growing a polycrystalline silicon-germanium region and a single crystal silicon-germanium region is supplied. The precursor gas can be, for example,  $\text{GeH}_4$ . The polycrystalline silicon-germanium region can be, for example, a base contact in a heterojunction bipolar transistor while the single crystal silicon-germanium region can be, for example, a base in the heterojunction bipolar transistor. The polycrystalline silicon-germanium region can be grown in a mass controlled mode at a certain temperature and a certain pressure of the precursor gas while the single crystal silicon-germanium region can be grown, concurrently, in a kinetically controlled mode at the same temperature and the same pressure of the precursor gas. The disclosed embodiments result in controlling the growth of the polycrystalline silicon-germanium independent of the growth of the single crystal silicon-germanium.